UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte ARZHAN I. KINZHALIN, ANDREY Y. CHERNYSHEV,
MIKHAIL GORSHENEV, and DEBRA DOOLEY

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Appeal 2007-1416
Application 09/881,791[1]
Technology Center 2100

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Decided: October 24, 2007

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Before JEAN R. HOMERE, JAY P. LUCAS, and JOHN A. JEFFERY,
Administrative Patent Judges.

LUCAS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

Appellants appeal from a Final Rejection of claims 1 to 20 under

authority of 35 U.S.C. § 134. The Board of Patent Appeals and

Interferences (BPAI) has jurisdiction under 35 U.S.C. § 6(b).

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[1] Application filed June 14, 2001. Appellants claims the benefit under
35 U.S.C. § 119 of provisional application 60/291,670 filed 5/16/01 and
60/292,185 filed 05/18/2001. The real party in interest is Sun Microsystems,
Inc.

Appellants invented an improved method for testing software modules under development. In the words of the Appellants:

> Broadly speaking, the present invention fills these needs by providing a system for tracking a specification that automatically obtains assertions within the specification. The embodiments of the present invention further provide testing of obtained assertions to determine if the assertions are valid assertions. In one embodiment, a method for automated acquisition of assertions in a specification of a computer program is disclosed. An input specification is received, wherein the input specification comprises a plurality of sentences. Then, a sentence is obtained from the plurality of sentences, and a determination is made as to whether the obtained sentence is a testable assertion. Next, the obtained sentence is marked as testable when the obtained sentence is a testable assertion. Some aspects of the present invention can identify a context within the specification, and obtain the sentence from the plurality of sentences by parsing the context. Moreover, the marked obtained sentence can be added to an assertion result set. Generally, the context is a set of circumstances related to the obtained sentence. Further, each assertion can comprise one, two, or more sentences of the specification.

(Specification, page 6.)

Claim 1 is exemplary:

1. A method for automated acquisition of assertions in a specification of a computer program, comprising:

receiving the specification as an input, wherein the specification includes a plurality of sentences describing the computer program;

obtaining a sentence from the plurality of sentences;

determining whether the obtained sentence is a testable assertion, wherein the testable assertion describes behavior of an application programming interface that can be tested;

marking the obtained sentence as testable when the obtained sentence is a testable assertion; and

using the sentences marked as testable to determine whether a test suite
for testing the computer program is adequate.

The prior art relied upon by the Examiner in rejecting the claims on

appeal is:

Pavela   US 6,332,211 B1   Dec. 18, 2001
                                                              (filed Dec. 28, 1998)

"Microsoft Press Computer Dictionary", Third Edition, 28, 1997.

Rejection:

Claims 1 to 20 stand rejected under 35 U.S.C. § 103(a) for being

obvious over Pavela in view of Microsoft Press Computer Dictionary

(MPCD) definition of application programming interface (API).

Appellants contend that the claimed subject matter is not rendered

obvious by Pavela alone, or in combination with MPCD, for failure of the

references to teach important claimed limitations. The Examiner contends

that the claims are properly rejected.

Rather than repeat the arguments of Appellants or the Examiner, we

make reference to the Briefs and the Answer for their respective details.

Only those arguments actually made by Appellants have been considered in

this decision. Arguments which Appellants could have made but chose not

to make in the Briefs have not been considered and are deemed to be

waived. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2004).[2]

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[2] Appellants have not presented any substantive arguments directed
separately to the patentability of the dependent claims or related claims in
each group, except as will be noted in this opinion. In the absence of a
separate argument with respect to those claims, they stand or fall with the
representative independent claim. *See In re Young,* 927 F.2d 588, 590, 18

We affirm the rejections.

ISSUE

The issue is whether Appellants have shown that the Examiner erred in rejecting the claims under 35 U.S.C. § 103(a). The issue turns on (1) whether Pavela teaches a specification of a computer program; (2) whether that specification includes a plurality of sentences describing a computer program; (3) whether Pavela teaches determining if the sentences are testable assertions, and (4) whether other claimed limitations are present in the references.

FINDINGS OF FACT

1. Appellants have invented a semi-automatic way of testing code segments in a computer program under development. The method is to be used with a Technology Compatibility Kit (TCK) test development process. (Specification 10, l. 10). The method starts with the specification of the computer program, which is explained as follows: "The specification 102 can be any specification, such as a Javadoc specification for a Java technology API [application program interface]. Preferably, the specification 102 includes a plurality of assertions that can be tested." (Specification 11, ll. 16-18). The specification is processed to generate a list of assertions. (Specification 11, l. 21). Appellants explain, "The embodiments of the present invention scan through the specification and split the entire text into logical statements. In some embodiments, discussed

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USPQ2d 1089, 1091 (Fed. Cir. 1991).

subsequently, each logical statement is then examiner by type to indicate if it is a testable assertion." (Specification 19, ll. 20-22). Specifications are first divided by context, and then by sentence. (Specification 22, ll. 6, 16). It is then decided whether a sentence is a testable assertion, by various means, including natural language processing, keywords or other techniques. (Specification 22, l. 21 *ff*). Appellants continue, "The discovered assertions are added to an assertion result set, in operation 512." (Specification 21, ll. 30-31).

2. Pavela teaches an automated system and method for testing software programs where the system test designer is relieved from writing test programs from scratch. (Col. 1, line 60). A script file, sometimes called a source file #318, is constructed in a structured way from a template #302 (see Fig. 4). The source file is used to generate test cases, test plans and other testing tools. (Col 6. l. 51+, Figure 3). The template for the source file has different sections, each commencing with a header. (Figure 4, those lines beginning with :h4). Some sections of the source file have just lines of descriptive text, such as the Objectives section #402. (Figure 5, #502). Other sections have an ordered list (starting with :ol) of procedures. (Figure 6, #602 to #616). The lines in this section contain commands (#602A-#616A), and parameters for guiding the execution of the respective command (#602B-616B). These lines are called tags and tag parameters. (Col. 6, line 4). They are used to generate test plans in conversational language using script macros. (Col. 6, l. 34). They are also scanned to identify system elements #132 that are tested by the test case. (Col.

6, l. 45). Thus each line in the procedures section is a testable, and tested statement. (Col. 6, top paragraph).

PRINCIPLES OF LAW

On appeal, Appellants bear the burden of showing that the Examiner has not established a legally sufficient basis for the rejection of the claims.

"In reviewing the [E]xaminer's decision on appeal, the Board must necessarily weigh all of the evidence and argument." *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

"To reject claims in an application under section 103, an examiner must show an unrebutted *prima facie* case of obviousness. . . . On appeal to the Board, an applicant can overcome a rejection by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness." [citations removed]. In re Rouffet, 149 F.3d 1350, 1355, 47 USPQ2d 1453, 1455 (Fed. Cir. 1998)

Both anticipation under 35 U.S.C. § 102 and obviousness under § 103 are two-step inquiries, in which the first step is a proper construction of the claims and the second step requires a comparison of the properly construed claim to the prior art. *Medichem S.A. v. Rolabo S.L.*, 353 F.3d 928, 933, 69 USPQ2d 1283, 1286 (Fed. Cir. 2003).

Our reviewing court states in *In re Zletz,* 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) that "claims must be interpreted as broadly as their terms reasonably allow." Our reviewing court further states that "the words of a claim 'are generally given their ordinary and customary meaning.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312, 75 USPQ2d 1321, 1326 (Fed. Cir. 2005) (en banc) (citations omitted). The "ordinary and customary meaning of a claim term is the meaning that the term would have

to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." Id. at 1313, 75 USPQ2d at 1326.

Laws of nature, physical phenomena, and abstract ideas are excluded from patent protection. *Diamond v. Diehr*, 450 U.S. 175, 185, 209 USPQ 1, 7 (1981).

The test for statutory subject matter is whether the claimed subject matter is directed to a "practical application," i.e., whether it is applied to produce "a useful, concrete and tangible result." *See State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1373, 47 USPQ2d 1596, 1601 (Fed. Cir. 1998).

ANALYSIS

Examiner has presented a prima facie case for the rejection of all claims 1 to 20 under 35 U.S.C. § 103 in view of the teachings of Pavela, and the definition of "application program interface" in the Microsoft Press Computer Dictionary (MPCD). (Answer, pages 2 to 8; Final Rejection 6/16/05 pages 3 to 9). The MPCD is merely used to substantiate that an "application program interface" mentioned in the claims (e.g. claim 1) is a (part of a) computer program. We do not find this point to be in dispute (Brief 12.) We will therefore concentrate on the analysis of the Pavela reference.

In response to the Examiner's prima facie case, Appellants have raised a number of arguments. Appellants contend "the source file of Pavela does not teach the specification of a computer program as recited in claim 1. Also, the source file of Pavela does not include sentences describing the computer program. It should be understood that the tags present within the

source file of Pavela are not sentences describing the computer program."
(Reply 9, middle). Appellants' first contention, that the source file is not a
specification as claimed, is difficult to find convincing. Note in FF1 above
that the program specification is defined in the patent specification as "any
specification… preferably including a plurality of assertions that can be
tested." In the claim, it is only stated that the specification includes a
plurality of sentences describing the computer program. Sentences are not
limited to grammatically formal constructions by either the specification or
the originally filed claims[3]. The Examiner asserts that Pavela's source file
#318 fits this broad definition, and we do not see error in that judgment. In
Pavela, the lines in the Objectives section indicate the nature of the operation
of the subject program and the tests that will be applied to it. The
Configuration and Procedure sections indicate some tests that will be applied
against the subject program. The details of the tests and parameters that are
being applied to the software indicate, if indirectly, what features that
software has, which will be tested.

Appellants indicate that "Those skilled in the art will appreciate that a
specification of a computer program is a conversant textual description of
the computer program's functionality." (Brief 14, l. 3 down). This
definition in the Brief is unsupported by the specification and contrary to the
quoted sections of the application specification (FF1, above). Appellants
argue that Table I supports their assertion. In Table I we see headings,
computer commands (e.g., "public static String toString (int i, int radix)")

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[3] We note that claim 1 as filed merely required "a plurality of sentences";
and that "describing the computer program" was added later to the claim.
Thus, that latter clause cannot rely on being based on originally filed
material in the claim.

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and parameter lists. We are not sure what "conversant" means in this context of conversant textual description (it is not in the Webster's International Dictionary, MPCD, or www.dictionary.com) but we find those elements very similar to those in the Pavela source file. We thus find sufficient support in the Pavela reference to render obvious the claimed "computer specification including a plurality of sentences describing the computer program".

Appellants next contend that "Pavela does not teach an operation for determining whether anything is a testable assertion." (Reply Br. 9 l. 8 from bottom). In Pavela, column 6, line 45 the lines of the source file are "scanned to identify system elements 132 that are tested by the test case, and to generate a text index . . .". In the source file #318, virtually all of the configuration section invokes tests (as opposed to the objectives section, which does not). We do not find Appellants' objection supported, as the operation in Pavela to find the testable assertions is to look at the configuration section of the source file.

Appellants contend that the lines to be tested are not marked. (Reply Br. 10, bottom). We note that they are marked by being labeled :h4 Procedure (Figure 6), but regardless would support the Examiner's conclusion. (Answer, page 4 top).

As Appellants appreciate that the remarks made with regard to claim 1 apply equally to independent claims 8 and 14, (Reply Br. 11, top) we will affirm the rejection of those claims under 35 U.S.C. § 103.

CONCLUSION OF LAW

Based on the findings of facts and analysis above, we conclude that the Examiner did not err in rejecting claims 1 to 20.

OTHER ISSUES

New Grounds of Rejection Under 37 C.F.R. § 41.50(b)

Under 37 C.F.R. § 41.50(b), we enter a new ground of rejection under 35 U.S.C. § 101 of claims 1 to 7. The basis for each is set forth in detail below.

35 U.S.C. § 101 provides:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Rejection of Claims 1-7 Under 35 U.S.C. § 101

Claims 1 to 7 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. We note that claims 1 to 7, given their broadest reasonable interpretation, do not require computer or machine implementation. The issue is whether these claims, which cover a method of indicating testable assertions in a computer program's specification, involve a transformation or related process involving the other three statutory categories (machine, manufacture, or composition of matter),[4]

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[4] "A machine is a concrete thing, consisting of parts, or of certain devices and combination of devices." *Burr v. Duryee*, 68 U.S. 531, 570 (1863). The term "manufacture" refers to "'the production of articles for use from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by hand-labor or by machinery.'" *Diamond v. Chakrabarty*, 447 U.S. 303, 308, 206 USPQ 193, 196-97 (1980) (quoting *American Fruit Growers, Inc. v. Brogdex Co.*, 283 U.S. 1, 11, 8

and recite patentable subject matter under 35 U.S.C. § 101. Giving the claim limitations their broadest reasonable interpretation, we conclude that claims 1 to 7 are unpatentable under section 101 because (i) they do not qualify as a "process" under section 101 as that term has been interpreted by case law, and (ii) they seek to patent an abstract idea.

In view of the recently decided case, *In re Comiskey*, --- F.3d ----, (2007 WL 2728361) (Fed. Cir. Sept. 20, 2007), we must consider the statutory sufficiency of the recited claims under 35 U.S.C. § 101. More particularly, apart from the word "automated" in the preamble which, at best, merely tangentially suggests a machine, claim 1 does not recite any steps that necessarily involve machine implementation. Without more, the recited steps can be considered merely a series of mental processes. We will return to the term "automated" after we analyze the other steps in representative claim 1.

The method of claim 1 contains the following steps, repeated from above:

- *receiving* the specification . . . which includes a plurality of sentences
- *obtaining* a sentence from the plurality
- *determine* whether the obtained sentence is a testable assertion
- *mark* the obtained sentence when it is a testable assertion
- *use* the marked sentences *to determine* whether a test suite is adequate.

USPQ 131, 133 (1931)). A "composition of matter" by its own terms requires matter. *Chakrabarty*, 447 U.S. at 308, 206 USPQ at 196-97.

Each of these steps, without some machine-based implementation or physical transformation can be considered mere mental steps unsupported by elements of a machine, manufacture or composition of matter.

Thus, method claim 1 differs from traditional process claims in several respects. For example, the claim does not recite any particular machine or apparatus to perform the recited steps. In addition, the method claim does not recite any electrical, chemical, or mechanical acts or results, which are typical in traditional process claims. Finally, the claim does not call for any physical transformation of an article to a different state or thing, nor does it require any transformation of data or signals.

We read the claims broadly, as they must be read during the examination process. (See *Zletz* cited above.) The *"receiving"* step is read on the mere acceptance of the Specification of the program for analysis. The *"obtaining"* step is drawing one's attention to one of the plurality of sentences. The *"determining"* step is an analysis based on a reading of the sentence. The *"marking"* step is a mere selection of those sentences that have been analyzed to be testable assertions. Such marking could merely be done mentally, as no other physical act or machine to implement the marking is recited in the claims. Finally, the *using* of the marked sentences for a determination can be considered a mental step involving evaluating the adequacy of the sentences for further testing. We judge these mental steps to be, in effect, an algorithm for making a decision concerning the specification of the program, not patentable under 35 U.S.C. § 101. In view of these steps covering a mental activity, the term "automated" in the preamble is left without supporting structure or steps.

In *Comiskey* the Court advises us as follows, ". . . the Supreme Court has held that a claim reciting an algorithm or abstract idea can state statutory subject matter only if, as employed in the process, it is embodies in, operates on, transforms, or otherwise involves another class of statutory subject matter, i.e., a machine, manufacture, or composition of matter." *In re Comiskey*, --- F.3d ----, (2007 WL 2728361) (Fed. Cir. Sept. 20, 2007). The Court, favorably quoting the USPTO brief, explains that there are only two instances where an algorithm method may qualify as a section 101 process: when the process 1) was tied to a particular apparatus or 2) operated to change materials to a different state or thing. *See also Diamond v. Diehr*, 450 U.S. at 184 (1981).

We come to the crux of the matter: do the words "method for automated acquisition" in the preamble serve to tie the claimed mental steps "to a particular machine"? We cannot see that they do; "automated" is merely an expression of intended use that, at best, recites a desired result of the claimed method. Crucially, however, the claim fails to positively recite any concrete, physical implementation to achieve this "automated" result as the term is wholly unsupported by physical steps or structure in the claims. Perhaps the intended use of the method will involve a machine, but we decline to infer such intentions suggested in the present specification into the claims.

Although the "marking" step comes closest to qualifying as statutory subject matter under *Diehr* and *Comiskey*, it still falls short under § 101. We find this step recites no more than the equivalent of "entering bids in a record" which was held insufficient under 35 U.S.C. § 101. *In re Schrader*, 22 F.3d 290, 294 (Fed. Cir. 1994).

We thus find that claims 1 to 7 are rejected under 35 U.S.C. § 101 for being non-statutory.

Ordinarily, in accordance with the guidance of *Comiskey* and other cases, the determination of patentable subject matter is a "predicate" issue. However, in view of the obviousness issue being the reason the instant case is before this Board, we will affirm the extant rejection under 35 U.S.C. § 103 as well as apply the rejection under 35 U.S.C. § 101.

DECISION

We have sustained the Examiner's prior art rejection with respect to claims 1 to 20, all the claims on appeal. Moreover, we have entered a new grounds of rejection under 37 C.F.R. § 41.50(b) for claims 1 to 7 as failing to recite statutory subject matter under 35 U.S.C. § 101.

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b) (amended effective Sept. 13, 2004, by final rule notice 69 Fed. Reg. 49,960 (Aug. 12, 2004), 1286 Off. Gaz. Pat. Office 21 (Sept. 7, 2004)). 37 C.F.R. § 41.50(b) provides that "[a] new ground of rejection . . . shall not be considered final for judicial review."

37 C.F.R. § 41.50(b) also provides that the Appellants, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

> (1) Reopen prosecution. Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the

> examiner, in which event the
> proceeding will be remanded to the
> examiner. . . .
>
> (2) Request rehearing. Request that
> the proceeding be reheard under
> § 41.52 by the Board upon the same
> record. . . .

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

<u>AFFIRMED</u>

<u>37 C.F.R. § 41.50(b)</u>

rwk

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